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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,284	11/15/2001	Dong Wu	56530US002	9016

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EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 04/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,284

Applicant(s)

WU ET AL.

Examiner

Callie E. Shosho

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 2/6/06.

It is noted that applicants filed 1.132 declaration on 2/16/06. However, the declaration was filed more than 6 months from the mailing date of the previous office action mailed 8/4/05 and thus, was not timely filed and cannot be considered by the examiner. However, a discussion of the declaration is set forth in paragraph 6 below.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2, 4, 6, 8-9, 15-27, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U.S. 2003/0236321) in view of Krepski et al. (U.S. 5,929,160).

The rejection is adequately set forth in paragraph 6 of the office action mailed 8/4/05 and is incorporated here by reference.

4. Claims 1-5, 9-16, 23-25, 27, 31, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu (U.S. 5,889,083) in view of Krepski et al. (U.S. 5,929,160).

The rejection is adequately set forth in paragraph 7 of the office action mailed 8/4/05 and is incorporated here by reference.

5. Claims 1-2, 4-9, 15-16, 23-25, 27-30, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erdtmann et al. (U.S. 6,533,408) in view of Krepski et al. (U.S. 5,929,160).

The rejection is adequately set forth in paragraph 8 of the office action mailed 8/4/05 and is incorporated here by reference.

Response to Arguments

6. Applicants' arguments filed 2/6/06 have been fully considered but they are not persuasive.

Specifically, applicants argue, as previously set forth in the response filed 5/20/05, that one of ordinary skill in the art would not combine Sano et al., Zhu, or Erdtmann et al., which are each drawn to ink jet ink composition, with Krepski et al., which is drawn to paper coating composition. Applicants argue that paper and ink jet ink compositions are very different from each other and to say they are similar ignores the methods by which each is applied to paper and takes into account only the end result.

However, it is noted that it is not the examiner's position that paper coatings and ink jet ink compositions are exactly the same. Rather the examiner's position is that although Krepski et al. is not drawn to ink jet inks, Krepski et al. is a "reasonably pertinent" reference against the present claims.

Applicants' are reminded that according to MPEP 2141.01 (a), a reference may be relied on as a basis for rejection of an applicants' invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent reference is

further described as one which “even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem.” Krepski et al., therefore, is a reasonably pertinent reference, because it teaches that silyl-terminated sulfopoly(ester-urethane) polymer imparts toughness, weatherability, abrasion resistance, and enhanced adhesion, which are functions especially pertinent to the invention at hand where it is important that inks have good toughness, weatherability, abrasion resistance, and adhesion in order that the ink adheres to substrate and does not smudge, fade, crack, etc.

Applicants argue that formulating ink jet inks and paper coatings are very complex and that small changes in the identities and amounts of ingredients may have huge effect on rheological properties of the formulations as well as their performance. Applicants also argue that given the complexity of coating technology, one cannot assume that formulations useful in one coating process can be utilized in an ink jet ink which is very complex and difficult to formulate.

However, in the present situation, it is noted that Sano et al., Zhu, and Erdtmann et al. each already disclose ink jet ink comprising polymer while Zhu and Erdtmann et al. disclose using the polymer in amount of 1-40% and 0.1-10%, respectively, which is the same amount the silyl-terminated sulfopoly(ester-urethane) is utilized in the present invention (see page 17, lines 20-22 of the present specification). The difference between Sano et al., Zhu, or Erdtmann et al. and the present claimed invention is the use of specific type of polymer, i.e. silyl-terminated

sulfopoly(ester-urethane). This is why each of Sano et al., Zhu, and Erdtmann et al. is used in combination with Krepski et al.

It is noted that Krepski et al. disclose the use of silyl-terminated sulfopoly(ester-urethane) in composition containing similar ingredients as those used in ink jet inks, i.e. water, pigment, dispersant, etc. Further, Krepski et al. disclose that the silyl-terminated sulfopoly(ester-urethane) has number average molecular weight of less than 50,000 which would overlap the molecular weight of the polymers utilized in each of Sano et al., Zhu, and Erdtmann et al. which disclose the use of polymer having molecular weight of 3,000-100,000 (Sano et al. – paragraph 62), approximately 5,000-30,000 (Erdtmann et al. – Table 1), and 1,500-50,000 (Zhu – col.4, lines 62-47). Additionally, it is noted that Krepski et al. disclose the use of silyl-terminated sulfopoly(ester-urethane) in polymer solution having viscosity of 1-50,000 cP, the lower end of which would clearly meet the viscosity requirement of ink jet inks (see page 9, lines 12-15 of the present specification). Further, example 37 of Krepski et al. disclose the use of silyl-terminated sulfopoly(ester-urethane) having particle size of 93 nm which particle size would clearly be suitable for use in ink jet inks. Evidence to support this position is found in Table 1 of Erdtmann et al. which discloses ink jet ink comprising polymer having particle size of about 8-300 nm and col.4, lines 55-61 of Zhu which discloses that the polymer must have particle size less than 1 μ m which is the size of printer capillary tube.

Thus, while the examiner recognizes that there are differences between paper coatings and ink jet inks as well as the difficulties/complexities of preparing ink jet inks, it is the examiner's position that the combination of Sano et al., Zhu, or Erdtmann et al. with Krepski et al. is proper not only because Krepski et al. disclose the use of silyl-terminated sulfopoly(ester-

urethane) in coatings for paper but that the silyl-terminated sulfopoly(ester-urethane) also meets rheological, i.e. molecular weight and viscosity, and physical, i.e. particle size, requirements necessary for ink jet inks and thus, one of ordinary skill in the art would have a reasonable expectation that the silyl-terminated sulfopoly(ester-urethane) would be suitable for use in the ink jet ink of Sano et al., Zhu, or Erdtmann et al.

Given that Krepski et al. disclose the use of silyl-terminated sulfopoly(ester-urethane) in order to impart toughness, weatherability, abrasion resistance, and enhanced adhesion to coatings on paper which are functions especially important to ink jet inks which are also utilized on paper, given that the composition of Krepski et al. utilizes similar ingredients as ink jet inks, i.e. water, pigment, dispersant, etc., and given that Krepski et al. disclose the use of silyl-terminated sulfopoly(ester-urethane) which would appear to meet the rheological and physical requirements necessary in ink jet inks, it is the examiner's position that it would have been obvious to one of ordinary skill in the art to combine Sano et al., Erdtmann et al., or Zhu with Krepski et al., and thereby arrive at the claimed invention.

In light of the above, it is the examiner's position that the combination of Sano et al., Zhu, or Erdtmann et al. with Krepski et al. is proper and thus remains relevant against the present claims.

It is noted that applicants filed 1.132 declaration on 2/16/06 in order to establish unexpected or surprising results over the cited prior art.

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As set forth in paragraph 1 above, given that the declaration was not timely filed, i.e. filed after the end of the 6 month statutory period for response, the declaration cannot be considered by the examiner.

However, it is noted that even if the declaration were considered, the declaration would not be persuasive for the following reasons.

The declaration compares ink within the scope of the present claims (example 1) with commercially available inks. It is shown that inks of the present invention are superior in terms of waterfastness on cotton fabric (comparative examples 1-3).

Firstly, it is noted that while the declaration states that the ink of the present invention is compared to several commercially available inks, it is not stated what these commercially available inks comprise or why these inks are outside the scope of the present claims. While it is assumed that the commercially available inks do not comprise silyl-terminated sulfopoly(ester-urethane), there is no such statement or disclosure regarding the commercially available inks.

Further, given that there is no disclosure of the ingredients that comprise the commercially available inks, i.e. Epson 700, Epson C80, HP 970 Cse, it is not clear that there is proper side-by-side comparison between the inks of the present invention (example 1) and the commercially available inks. Thus, there is no evidence that the differences between the inventive ink and the comparative inks is due to the use of silyl-terminated sulfopoly(ester-urethane) and not to other differences between the inks, i.e. use of additional ingredients, use of different types and amounts of water, solvent, colorant, resin, etc. or use of ingredients that would effect the waterfastness of the ink.

Additionally, it is noted that while the declaration discloses the use of inventive ink comprising pigment, there is no disclosure of inventive ink comprising dye which is especially significant in light of claim 5 which requires the use of dye.

In light of the above, it is the examiner's position that even if the examiner had considered the declaration, the declaration would not be successful in establishing unexpected or surprising results over the cited prior art.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
4/7/06